

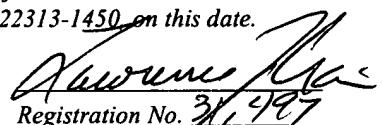
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Zerong Wang  
Serial No.: 10/687,505  
Conf. No.: 9040  
Filed: October 16, 2003  
For: WATER SUPPLY SYSTEM AND  
MULTIFUNCTIONAL WATER.....  
Art Unit: 1724

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Registration No. 31,497  
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P.O. Box 1450  
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CLAIM FOR PRIORITY

Dear Sir:

Applicant claims foreign priority benefits under 35 U.S.C. § 119 on the basis of the foreign application identified below:

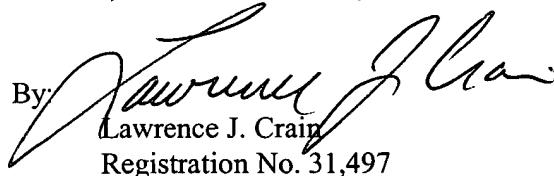
Chinese Patent Application No. 01 2 14735.4, filed April 16, 2001.

A certified copy of the priority document and an English translation is enclosed.

Respectfully submitted,

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## CERTIFICATE

The appendix of the certificate is the patent application copy provided to us.

Application Date : April 16, 2001

Application Number : 01 2 14735.4

Kind of Application : Utility Model

Invention Title : MULTIFUNCTIONAL WATER SUPPLY TANK

Applicant(s) : Zerong WANG

Inventor(s) or Designer(s): Zerong WANG

Commissioner: Jingchuan WANG  
Intellectual Property Bureau of the people's Republic of China

Filing by: October 22, 2003

**WHAT IS CLAIMED IS:**

1. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water, wherein it includes a service water storage room containing a water inlet and a water outlet, a potable water storage room communicating with the service water storage room and containing purifying agents, a potable water outlet and a water outlet communicating with a solar water heater.

2. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1, wherein a through hole is provided in the separating wall between the service water storage room and the potable water storage room, the potable water outlet being located in the upper part of the potable water storage room.

3. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein the purifying agents are plastic-net filtering bags containing quartz grits, an ozone inflating tube with one end extending outside the tank and connected with an ozone generator, and the plastic-net filtering bags are disposed in a movable plastic tube supporting frame.

4. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claims 3, wherein it has an ozone branch inflating tube, whose one end is communicated with the ozone inflating tube and the other end extends into the bottom of the filtering bags in the

service water storage room.

5. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein the service water storage room has a float-type automatic switch valve at its inlet.

6. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein a glass-visualized water level gage and an overflow pipe located are outside the water supply tank.

7. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein a sewage draining valve is individually disposed at the bottom of service water storage room and that of the potable water storage room.

8. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claims 1 or 2, characterized in that at the bottom of the service water storage room and the potable water storage room, two inclined foam concrete-filled temperature-preserving layers are disposed at either side of a sewage draining valve and a stainless steel plate is covered on the foam concrete-filled temperature-preserving layer.

9. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein the water tank wall, the tank cover and the outlet pipes connected with the water

outlet are individually made of a light steel plate-wire-net-concrete layer or a stainless steel inner wall, a micro electrically-heated layer, a temperature-preserved foam concrete layer, a polymer temperature-preserving heat-isolating layer, and a temperature-preserving light-reflecting surface film, the micro electrically-heated layer being composed of a heat-conductive isolating film, a 36V micro electrically-heating film or plate, and an isolating film, which are connected in succession.

10. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein a purified water-circulating return pipe is connected with the upper part of the potable water storage room.

11. A multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to claim 1 or 2, wherein a decorative safeguarding fence is provided outside the water supply tank.

## **MULTIFUNCTIONAL WATER SUPPLY TANK**

The utility model relates to a multifunctional water supply tank, in particular to a multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water.

Water is the source of life, and is indispensable to our daily life. The water we use in our daily life comes from the water source and is purified in waterworks, the purified water being then transported through water duct to a water pressure-stabilizing water tower, where the water is branched to a water supply pipe network and goes to residential quarters for the daily use of inhabitants. The water pressure-stabilized water tower pressurizes the normally processed tap water and transports it to individual users. During the transportation, the obsolete water pipe network and the broken pipes will contaminate the tap water. In recent years, with the development of economy, people have an increasing consciousness and higher demands on their environmental sanitation. They put more and more demands on the quality of drinking water. A number of purifying equipment such as home water purifiers and purifying systems, as well as bottled purified water appeared on the market. These products for drinking water, however, are only applicable to very few families and are unaccepted by most of the people due to their high price (more than 800-1000yuan/ton water) and extremely inconvenient usage. Moreover, these household water purifiers are very liable to stoppage and are difficult to clean up.

The objective of the utility model is solved through a multifunctional water

supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to the utility model includes a service water storage room with a water inlet and a water outlet, a potable water storage room communicating with the service water storage room and containing purifying agents, potable water outlet, and a water outlet communicating with a solar water heater. The existed tap water piping network is communicated with the outlet of potable water storage room, connecting the potable water outlet with household water purifiers and systems so that they cannot be stopped and are convenient to use. Alternately, it is possible to connect at the outlet of the potable water storage room via pipes at least a set of filtering cylinder assembly and a (quality-distinguished) potable and service water supply piping network which is formed by non-secondary-contamination material and related instruments and is matched with the filtering cylinder assembly and a set of high-power solar water heater as well as a hot water storage pot, such that the service water and the purified potable water as well as the pure water and the solar heated water can be separated and charged individually, making clear the difference between the potable water charges and the charges by the waterworks, and ensuring the realization of a quality-distinguished potable and service water supply system.

The service water storage room and the potable water storage room have a communicating hole at their separating wall. The potable water outlet is located at the upper part of the potable water storage room, the tap water is rebounded from the bottom of the service water storage room, enters into the lower part of the potable water storage room and is again rebounded up to the upper part of the room and finally flows out of the

potable water outlet.

The purifying agents in the potable water storage room can be plastic-net filter bags containing quartz grits and an ozone inflating tube connected to a ozone generator, the plastic-net filter bag being mounted in a movable plastic tube supporting frame. The inflating tube is filled with a certain amount of ozone for killing bacteria and for disinfection. The number of the filter bags can be 8-10, depending on requirements. The filter bags can be easily removed from the potable water storage room at any time for cleansing.

One end of the service water storage room is connected with the ozone inflating tube and the other end is plunged into an ozone inflating branch tube at the bottom of the filtering bags in the service water storage room.

The service water storage room has a float-type automatic switch valve at its inlet.

Outside the water supply tank is located a glass-visualized water level gage and an overflow tube, with which the water level within the tank can be known and an overflow can be carried out through the overflow tube in the case of a fault with the inlet float switch valve.

A sewage draining valve is individually disposed at the bottom of service water storage room and that of the potable water storage room, and the drained sewage is collected in a sewage pool and a cleansing pool where it is deposited and filtered into neutral water.

At the bottom of the water storage tank, there are two inclined foam

concrete-filled temperature-preserving layers at either side of the sewage draining holes, and on the foam concrete-filled temperature-preserving layer there is a stainless steel plate cover, making the cleansing and the drainage easier and ensuring heat preservation at the bottom.

The wall, cover and the outlet pipes connected with the water outlet of the water supply tank are individually made of successively-connected light steel plate, wire-net and concrete, or an inner wall stainless steel with micro electrically-heated layer and a temperature-preserving foam concrete as well as a foam plastic temperature-preserving layer. The micro electrically-heated layer is composed of a 36V DZR micro heating film or plate and an isolating film, keeping the water temperature within  $5^{\circ}\text{C}$  - $23^{\circ}\text{C}$ , and is automatically switched by a connected temperature-sensitive wire and a temperature-controlling relay to prevent from freezing and preserve the heat. In the northern part of China, it is necessary to heat to prevent freezing, whereas in the south, only the functions such as heat-preservation, sunshine-proof and anticorrosion are required.

A clean water-circulating return tube is connected with the upper part of the potable water storage room and an electromagnetic valve and a pump at the bottom are actuated by a timer to ensure a fresh and clean water supply.

A decorative safeguarding fence is provided outside the water supply tank. The water supply tank according to the utility model can be mounted on roofs, and can thus operate by use of water potential energy to save energy consumption. For low-storey buildings with sufficient water pressure, the water supply tank can be located

in ground floor room and utilizes the water pressure to transport the water to individual users.

Referring now Figs. 1 and 2, the multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water is connected with urban water supply piping network, switched on automatically by a float switch valve and enters into the water storage room, supplying water in 3 pipes, that is,

For potable water, as shown in Fig.1, the water goes through 2 sets of large-capacity water purifying and filtering cylinder assembly (with one spare purifying and filtering cylinder assembly), a sewage draining pool, a cleansing pool, a water supply main pipe into a unit water supply branch pipe, where it enters into a household water supply pipe and goes through a water meter, a potable water pipe and valves for drinking. For the buildings that are difficult to be reconstructed into the buildings with independent household water supply services, it is possible to establish a central water sales station using the system of the utility model, providing sporadically pure water and electrically-heated hot water.

For service water, as shown in Figs.1 and 2, the water goes through a water supply main pipe and a float valve into the bottom of the water storage room, where it is processed firstly by sand filtering bags and ozone-disinfected and enters into a main water pipe, a unit branch pipe, from there it enters into household water supply pipe and goes through water meters and finally reaches individual household water appliances. If the building is a reconstructed old building, the original water storage tank, with

reference to Fig.2, can be reconstructed as a service water storage room, the service water can be directly connected into the original water-piping network. With an additional potable water storage room, the original water storage tank can then become a multifunctional water supply tank.

For solar heated water, the system is utilized in the areas with sufficient sunshine. The water goes through the piping shown in Figs. 1 and 2, and enters into a large-power solar water heater from the upper part of the potable water storage tank, where the water is heated and goes into a hot water-preserving storage pot, and enters then into a temperature-preserving hot water main pipe, a unit branch pipe, a hot water meter and finally reaches household water appliances for the use of washing and bathing.

With the above-mentioned water supply system, it is possible to reconstruct the unitary residential building and building groups, and the system can be installed directly in the residential quarters both already constructed and newly planned with the only requirement that the water consumption amount be designed in a calculable basis and be arranged systematically. The clear relationship between the quality-distinguished water supply operation management and the operation management of the city tap water company ensures that the water income of the city tap water company won't be harmed. The timely cleansing and the maintaining of the water quality is managed by special persons from the specialized water-cleaning engineering company, and each household water meter will be checked and the water consumption charged, ensuring a return of the investment and a long-term water supply operation. Thus, the water-drinking problem of the urban inhabitants can be solved easily under the circumstances of no investment from

the state, and people have cheap, fresh and clean magnetized potable water without the damage of the elements contained in water. The price of the water is much lower than that sold on the market, saving thus evidently the water and promoting the sanitation of water drinking and people's health. The system according to the utility model is easy to install and does not require the reconstruction of the old urban water supply network. Cost for the engineering equipment installation is quite lower at about 1800 yuan/household.

The water supply system with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to the utility model can ensure a sustainable use of water resource, and becomes therefore a feasible means for speeding up the reforms of water drinking and utilization in our country.

The water supply system with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to the utility model connects the urban tap water pipes with the automatically-switched pressure-stabilized water storage tank for potable and service water on building roof, and is then connected in two ways into the large-capacity water purifying system with service water pipe and potable and pure water pipe, where the water is transported to individual residential household and industrial water meters through pipes and equipment made of non-contaminated new materials.

The water supply tank and system according to the utility model can solve the problems of insufficient tap water pressure and the quality-distinguished water supply as well as the water purification of the contaminated water after going through the water piping network. The potable water, service water, and the solar heated water are made

flow separately and are utilized economically, resulting in a drastic saving in water resource and energy, ensuring a safe and sanitary drinking water and promoting people's health. The system according to the utility model can be constructed rapidly, without the necessity in breaking ground and paving new pipe networks, thus casting little negative influence, requiring only lower costs and saving the investment with very good processing effects and economical and social profits, and being suitable to the reconstruction of the present urban water supply network to improve the quality of drinking water.

The utility model can solve the problem of insufficient tap water pressure and the secondary contamination in water piping network, distinguishing between the service water, the purified potable water, the solar heated water, the neutral water.

The utility model will now be further described and explained in accordance with the accompanied figures, in which

Fig.1 is a schematic diagram of the configuration of the water supply tank according to the utility model;

Fig.2 is a schematic diagram of the water supply system with pressure-stabilized water storage and quality-distinguished supply of service and potable water according to the utility model;

Fig.3 is a schematic diagram of the temperature-preserving layer for the wall cover and the pipe wall of the water supply tank according to the utility model;

Fig.4 is a schematic diagram of the configuration of the temperature-preserving layer for the water pipe of the water supply tank according to the utility model;

Fig.5 is a schematic diagram of the decorative safeguarding fence outside the water supply tank according to the utility model;

Fig.6 is a plan view of the decorative safeguarding fence (Type A) outside the water supply tank according to the utility model;

Fig.7 is a plan view of the decorative safeguarding fence (Type B) outside the water supply tank according to the utility model.

Referring now to Figs. 1, a water supply tank 1 is composed of a service water storage room 4, which contains a water inlet 2 and a water outlet 3, and a potable water storage room 5. A float-type automatic switch valve 6 is arranged at the inlet within the service water storage room. The water supply tank 1 has an inlet on its upper part, which is communicated with a tap water inlet pipe 7 containing a valve, and a service water pipe 8 disposed at its lower part. An overflow pipe 9 is communicated with the upper part of the service water storage room. A water level pipe 10 is communicated with the overflow pipe and the service water pipe. A movable plastic tube 11 containing purifying agents, the quartz grits bags, and a separating supporting frame 12 are disposed at the outlet. One end of the water pipe 13 connected with the inlet extends through the movable separating supporting frame into the bottom of the storage room. A sewage-draining valve is arranged at the bottom. On either side of the valve is disposed an inclined foam concrete-filled temperature-preserving layer, whose surface is covered with a thin stainless steel plate 16. A through hole 17 is disposed at the lower part of the wall between the service water storage room and the potable water storage room to connect the two rooms. A movable plastic tube-supporting frame 18 is disposed in the potable

water storage room, with quartz grits bags 19 arranged thereon. On either side of the sewage-draining valve 20 at the bottom of the room is disposed an inclined foam concrete-filled temperature-preserving layer 21, whose surface is covered with a thin stainless steel plate 22. An ozone inflating tube 24, whose one end is communicated with an ozone generator 23, extends through the service water storage room into the bottom of the movable plastic tube in the potable water storage room, and an ozone branch inflating tube 25 communicating with the ozone inflating tube extends to the outlet at the bottom of the movable plastic tube and the separating supporting frame. In the upper part of potable water storage room are disposed a potable water outlet 25, an outlet 26 connecting with a solar water heater, and a timed and electrically-controlled valve 27 for the returned circulating purified water. Referring now to Figs. 3 and 4, The wall cover of the water supply tank and the water pipe wall are composed respectively of a stainless steel plate 28, a micro electrically-heated temperature-preserving layer 29, a temperature-preserving foam concrete layer 30, a polymer foam plate 31, and a temperature-preserving light-reflecting surface film, which are connected in succession. The micro electrically-heated temperature-preserving layer 29 includes a heat-isolating film 33, a 36V micro electrically-heated film or plate 34, and an insulating film 35, the micro electrically-heated temperature-preserving layer being connected with a temperature-sensitive relay switch 36. A decorative safeguarding fence 37 is provided outside the water supply tank.

Referring to Fig.2, in the purified water storage room, the timed and electrically-controlled valve has a returned circulating purified water pipe 38. The solar

water heater is connected with a temperature-preserving hot water pot 39, which is again connected with a branch hot water pipe 40 to various households. The sewage drained from the sewage draining valve can be processed into neutral water after being deposited and filtered in a sewage pool 41 and a depositing pool 42. The potable water from the potable water outlet goes through a potable water pipe 43 and a multi-stage filtering cylinder assembly 44 and enters into users. The returned water flows through a backwater pipe 45 and returns into a backwater pipe 38 after being activated by a pump 46 and the timed electrically-controlled valve. A collecting tray 47 is disposed below the multi-stage filtering cylinder assembly; a valve 48 is disposed thereafter on the potable water pipe to let the water in a cleansing pool 49 for cleansing the filter.

Fig.5 is a schematic diagram of the decorative safeguarding fence outside the water supply tank according to the utility model.

Fig.6 is a plan view of the decorative safeguarding fence (Type A) outside the water supply tank according to the utility model.

Fig.7 is a plan view of the decorative safeguarding fence (Type B) outside the water supply tank according to the utility model.

## ABSTRACT

The utility model discloses a multifunctional water supply tank with pressure-stabilized water storage and quality-distinguished supply of service and potable water, which includes a service water storage room with a water inlet and a water outlet, a potable water storage room communicated with the service water storage room and containing purifying agents, a potable water outlet, and a water outlet communicated with a solar water heater, the present utility model solves the problems of insufficient water pressure of tap water pipe network and the secondary water contamination during water supply by the pipe network, meanwhile it heats and preserves the temperature of the water supply tank cover and the water supply pipe walls, and separates pure water from service water, solar heated water, and purified potable water for separate metering and utilization.

# 证 明

本证明之附件是向本局提交的下列专利申请副本

申 请 日： 2001 04 16

申 请 号： 01 2 14735.4

申 请 类 别： 实用新型

发明创造名称： 稳压贮水饮用分质多功能供水箱

申 请 人： 王泽蓉

发明人或设计人： 王泽蓉

中华人民共和国  
国家知识产权局局长

王素川

2003 年 10 月 22 日

## 权利要求书

- 1、稳压贮水饮用分质多功能供水箱，其特征在于包括含进水口和出水口的生活用水贮水室、与生活用水贮水室相通的含净化物、饮水出口和与太阳能热水器相通的出水口的饮水贮水室。
- 2、如权利要求 1 所述的稳压贮水饮用分质多功能供水箱，其特征在于生活用水贮水室与饮水贮水室隔壁有联通孔，饮水出口位于饮水贮水室上部。
- 3、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于饮水贮水室中净化物为装有石英砂的塑料网过滤袋底部有一端伸出箱体外与臭氧发生器相连的臭氧充气管，塑料网过滤袋装在活动塑料管支撑架中。
- 4、如权利要求 3 所述的稳压贮水饮用分质多功能供水箱，其特征在于有一端与臭氧充气管连通而另一端伸入生活用水贮水室过滤袋底部的臭氧分支充气管。
- 5、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于生活用水贮水室进水口处有浮球式自动启闭阀。
- 6、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于供水箱外有分别与生活用水贮水室连通的玻璃可视水位计、溢流管。
- 7、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于生活用水贮水室、饮水贮水室底部分别有排污阀。
- 8、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于生活用水贮水室、饮水贮水室内底部排污阀两侧分别有泡沫混凝土填塞的有坡度的填充保温层，填充保温层上面有不锈钢板。
- 9、如权利要求 1 或 2 所述的稳压贮水饮用分质多功能供水箱，其特征在于水箱壁、盖、与出水口相连的出水管分别由依次连接的轻质钢板丝网布混凝土层或不锈钢板内层、微电热加温层、泡沫保温混凝土层、高分

子保温隔热泡沫板、保温反光面膜组成，微电热保温层由导热绝缘膜、36V  
微电热膜或板、绝缘膜组成。

10、如权利要求1或2所述的稳压贮水饮用分质多功能供水箱，其特征在于饮水贮水室上部接有净水循环回水管。

11、如权利要求1或2所述的稳压贮水饮用分质多功能供水箱，其特征在于供水箱外有装饰防护栅栏。

# 说 明 书

## 稳压贮水饮用分质多功能供水箱

本实用新型涉及的是一种供水箱，特别涉及的是一种稳压贮水饮用分质多功能供水箱。

水是生命之源是人们离不开的，我们日常生活中所用的水是城镇自来水厂在取水源头经过净化处理，通过输水管，到供水稳压水塔再分送入供水管网进入居住区，各居民用户生活使用。供水稳压水塔将常规处理的自来水加压后向各单元用户输送，陈旧的供水管网二次污染自来水。近年来随着经济的发展，人们对环境和卫生条件的意识和要求越来越高。大家对饮水的要求也越来越高，随之而来的家庭净水器、净水宝，市面上的罐装太空水、纯净水等出现在市场上，但这些水产品，由于价格高（每吨水 800—1000 元以上），并使用极不方便只能为极少数家庭人员使用，大多数人不能受用。家庭净水器、净水宝极易堵塞难清洗。

鉴于以上原因，本实用新型的目的是为提供一种能解决自来水压力不足和管网供水二次污染问题，将生活用水和净化饮用水分开的稳压贮水饮用分质多功能供水箱。

本实用新型的目的是这样来实现的：本实用新型供水箱包括含进水口和出水口的生活用水贮水室和与生活用水贮水室相通的含净化物、饮水出口与太阳能热水器相通的出水口的饮水贮水室，已有的自来水管网与生活用水贮水室出水口连通，将饮水出口和家庭用净水宝、净水器相连通，这样家庭用净水室、净水器不易堵塞，使用方便，也可在饮水贮水室饮水出口处通过管道连接至少一套滤筒组件，与滤筒组件及一套大功率太阳能热水器与贮热水罐相匹配的由无二次污染材料和仪表组成的饮用水（分质）供水管网，这样便可将生活用水和饮用水及太阳能热水分开且分别计度收费，使饮用水收费和自来水公司收费经济关系明确，确保饮用水的分质供水系统能够实施。

上述的生活用水贮水室与饮水贮水室同壁有联通孔，饮水出口位于饮水贮水室上部，自来水从用水贮水室底部反冲出由联通孔进入饮水贮水室下部再反冲到上部从饮水出口流出。

上述的饮用水贮水室中净化物为装有石英砂的塑料网过滤袋、与臭氧发生器相连的臭氧充气管，塑料网过滤袋装在活动塑料管支撑架中，充气管充入匹配的适量臭氧气灭菌消毒，过滤袋的多少视需要而定，可为 8—10 袋，可随时将过滤袋从饮水贮水室

中取出进行清洗，很方便。

上述的生活用水贮水室中有一端与臭氧充气管连通而另一端伸入生活用贮水室过滤袋底部的臭氧分充气管。

上述的生活用水贮水室进水口处有浮球式自动启闭阀。

上述的供水箱外装有玻璃可视水位计及溢流管，可了解供水箱内水位高低和进水浮球阀故障时溢流管过水溢流。

上述的生活用水贮水室和饮水贮水室底部分别有排污阀，并将排放的污水集中于污水池及清洗池中沉淀过滤处理成为中水使用。

上述贮水箱底部在排污孔两侧有泡沫混凝土填塞的有斜坡的填充保温层，填充保温层上面有不锈薄钢板铺面，便于清洗排污和底部保温。

上述的供水箱由壁、盖、与出水口相连的出水管分别由依次连接的轻质钢板钢丝网布混凝土或不锈钢板内壁及微电热加温层和泡沫保温混凝土及发泡塑料保温层制成，微电热加温层由 36V 电压的 DZR 微电热膜或板及绝缘膜组成，将水温控制在 5℃—23℃ 之间，由连通的温感导线及温控继电器自动启闭，防冰冻保温，在我国北方需加温防冻，南方只需保温防晒、防腐蚀。

上述的饮水贮水室上部接有净水循环回水管，由定时器启动电磁阀和底部水泵定时循环净水，保证水质新鲜清洁。

上述的供水箱外有装饰防护栅栏。

上述的供水箱可安置于屋顶利用重力顺流运行、节能，水压充足的低层楼房可设置在地面室内，利用水压将饮用水送入用户。

参见图 1、图 2，本实用新型供水箱由自来水城镇管网供水接管，经浮球自动启闭阀进入贮水室，分三条管路供水：

一、饮水：经由图 1 所示的大容量水净化磁化滤筒两套（备用壹套过滤、磁化、净化筒）、排污池、清洗池、供水主管、进单元供水支管、进户供水管、计度水表、饮水管、阀门供饮用。

二、生活用水：经由图 1、2 所示供水主管、经浮球阀进入贮水底部，由沙滤袋初滤和臭氧处理后进主水管、单元支管、进户水管、计度水表、到户内各用水设备。如属旧楼改造可参见图 2 改造利用原贮水箱作为生活用水贮水室，生活用水直接接入原用水管网，再拼装一个饮水贮水室即可成为多功能供水箱。

三、太阳能热水：在日照充足的地区使用。经由图 1、2 所示的管路，水从饮水贮水箱上部进入大功率太阳能热水器加热再进入热水保温贮水罐、进保温热水主管、单元支管、热水计度水表到用水设备，供用户沐浴洗涤。

用上述含本实用新型的供水系统可对单幢楼房和群体楼房改造，也可以直接进入已建居民小区和新建居民小区，只需对用水量计算设计和系统配置。供水管理和自来水公司管理的关系明确，保障了自来水公司的水费收入不受侵犯。净水系统的定时清洗和水质安全保证，由专业净水工程管理公司派专人管理按户查表、计度收费，保证了投资的回收和长期供水运转。这样城镇居民的饮水可以在国家不投资的情况下得到解决，而且人们得到经济的新鲜洁净磁化饮水，不影响原水中所含元素，其价格比现市面价成倍的降低，明显地做到节约用水，对人们的饮水卫生和身体健康起了极大的推动作用，本系统安装施工简易，不需动大手术，工程设备造价低，预计每户在 1800 元左右。

与本实用新型相连的稳压贮水饮用（分质）供水系统，符合多、快、好、省的建设方针，可持续的节约利用水资源，是当前我国加快改造饮水用水的可行办法。

贮水稳压饮、用（分质）供水系统，是将城镇自来水管接入楼房屋面自动启闭饮水用水稳压贮水箱，在分两路接入生活用水管路和饮水管路的大容量净磁化水处理系统，再经过一套新型材料的无污染管路和设备输送到居住用户计表使用。

本实用新型供水箱与之连接的供水系统解决了自来水压力不足和分质供水及自来水管网二次污染后的净水问题，饮水和生活用水太阳能热水分流使用经济实惠，节约水资源，节能，保障人们饮水卫生安全和身体健康。本实用新型系统工程施工快，不需破路铺设管网，影响面小，造价成本低，节约投资，处理效果好，经济效益和社会效益显著，适用于当前改造城镇饮水设施。

本实用新型结构简单、能解决自来水压力不足和管网供水的二次污染问题，将生活用水和净化饮用水分开。

下面介绍本实用新型的实施例：

图 1 为本实用新型供水箱结构示意图。

图 2 为本实用新型用于供水系统示意图。

图 3 为本实用新型供水箱壁盖及管道壁加温保温示意图。

图 4 为本实用新型供水箱水管保温结构示意图。

图 5 为本实用新型供水箱外围装饰防护栅栏示意图。

图 6 为本实用新型供水箱装饰防护栅栏俯视示意图 A 型。

图 7 为本实用新型供水箱装饰防护栅栏俯视示意图 B 型。

参见图 1，供水箱 1 由含进水口 2 和出水口 3 的生活用水贮水室 4 和饮水贮水室 5 组成，生活用水贮水室内进口处装有浮球式自动启闭阀 6。其上部进水口与含阀门的自来水进水管 7 连通，其下部在出水口处装有生活用水管 8。溢流管 9 与生活用水贮水室上部连通。水位管 10 与溢流管、生活用水管连通。位于出水口处有含净化物——石英

砂袋 11 的活动塑料管及隔板支撑架 12。与进水口连通的水管 13 一端穿过活动隔板支架 12 伸入贮水室底部。其底部有排污阀 14，其两边有泡沫混凝土填塞的有坡度的填充保温层 15，保温层 15 表面有薄型不锈钢板 16。在生活用水贮水室和饮水贮水室间壁下部有将二室连通的联通孔 17。饮水贮水室中有活动塑料管支撑架 18，其上装有石英砂袋 19。底部排污阀 20 两侧有泡沫混凝土填塞的有坡度的填充保温层 21，填充保温层 21 表面有薄型不锈钢板 22。一端与臭氧发生器 23 连通的臭氧充气管 24 穿过生活用水贮水室伸入饮水贮水室活动塑料管支架底部。与臭氧充气管连通的臭氧分充气管 25 伸入活动塑料管及隔板支架底部 13 出口处。饮水贮水室上部有饮水出水口 25 与太阳能热水器连通的出水口 26，循环净水回水计时电控阀 27。参见图 3、图 4，供水箱壁盖、水管壁分别由依次连接的不锈钢板 28、微电热加温层 29、保温泡沫混凝土 30、高分子泡沫板 31、保温反光面膜 32 组成。微电热保温层包括导热绝缘膜 33、36V 微电热膜或板 34、绝缘膜 35。微电热保温层与温感继电器开关 36 连接，在供水箱外有装饰防护栅栏 37。

参见图 2，在净水贮水室、计时电控阀门有净水循环回水管 38。太阳能热水器与保温贮热水罐 39 连接，再接分热水管 40 到各用户。从排污阀排出的污水可经污水池 41、沉淀池 42 沉淀过滤处理为中水再使用。从饮水口出来的饮水经饮用水管 43 后经多级滤筒组 44 再到各用户。回水经回水管 45 由水泵 46 与计时电控阀门启动经回水管 38 回流。  
多级滤筒组下部设有集水盘 47，其后在饮用水管上设阀门 48 放水入清洗池 49 中供清洗器用。

图 5 为本实用新型供水箱外围装饰防护栅栏示意图。

图 6 为本实用新型供水箱装饰防护栅栏俯视示意图 A 型。

图 7 为本实用新型供水箱装饰防护栅栏俯视示意图 B 型。

## 说 明 书 附 图

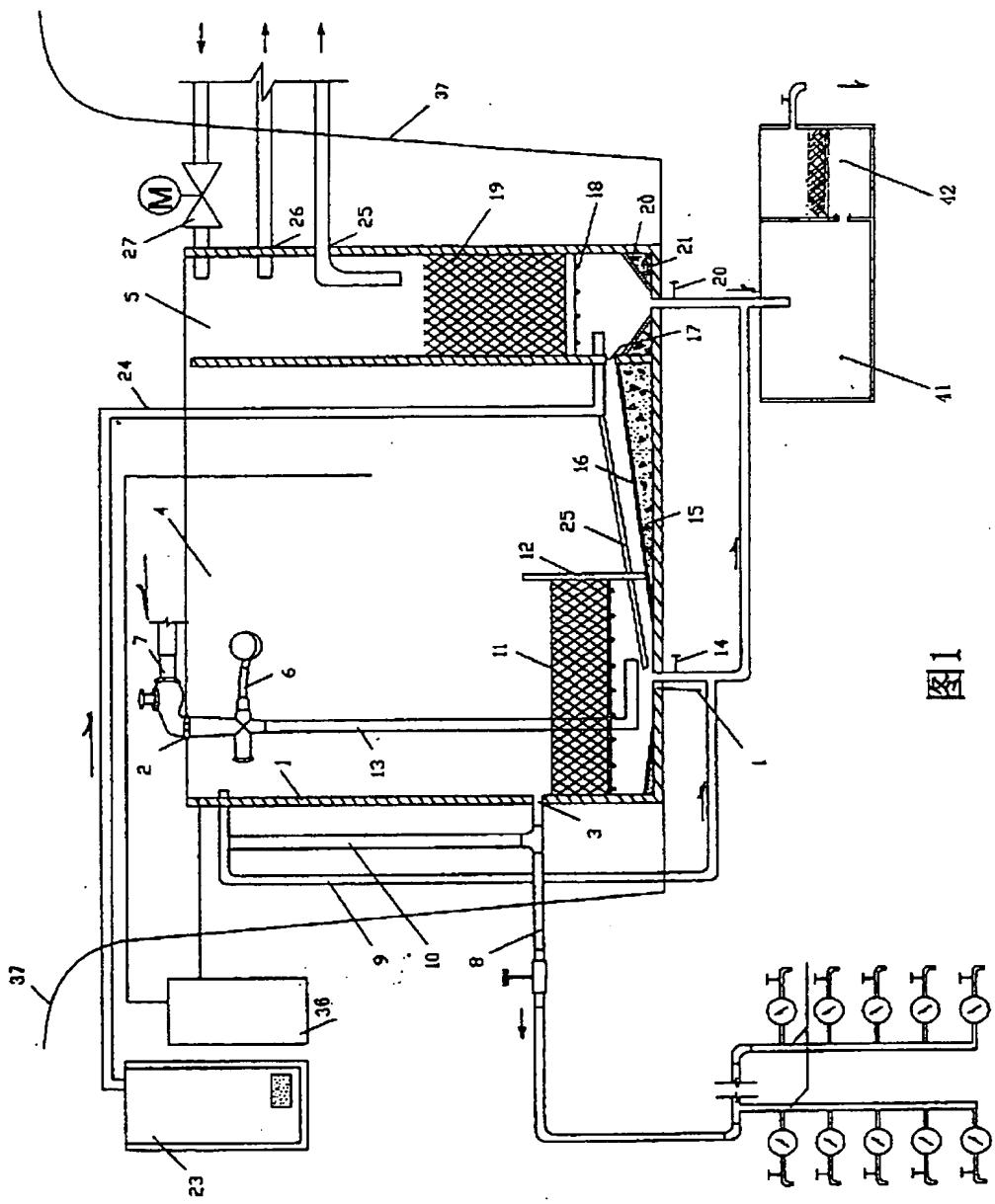


图1

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12

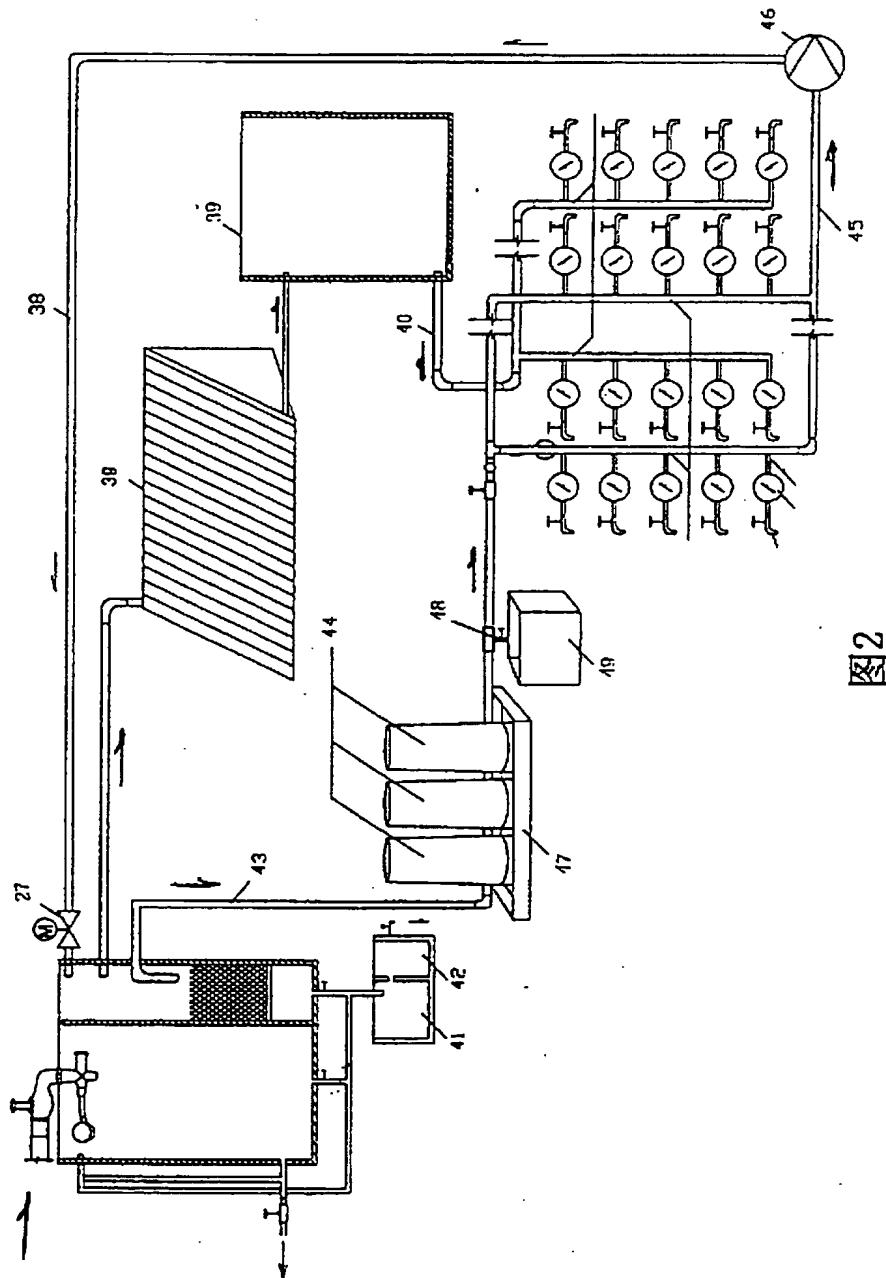


图2

2

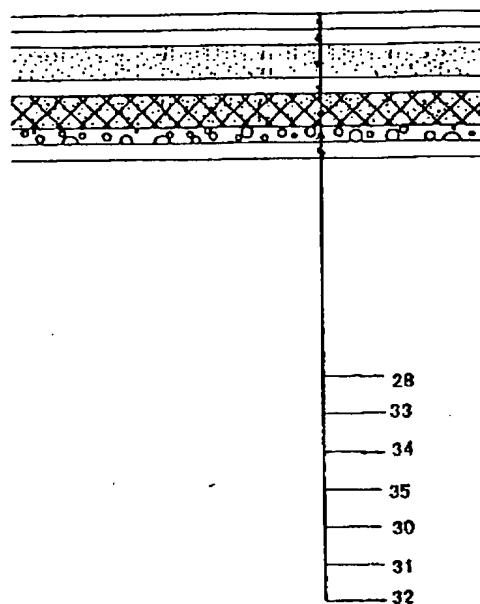


图3

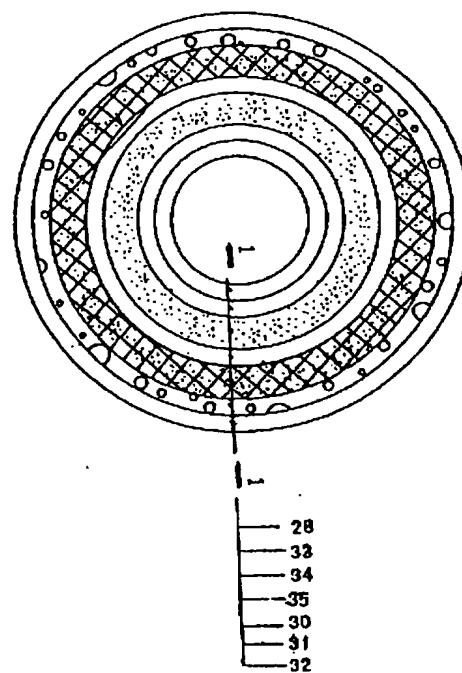


图4

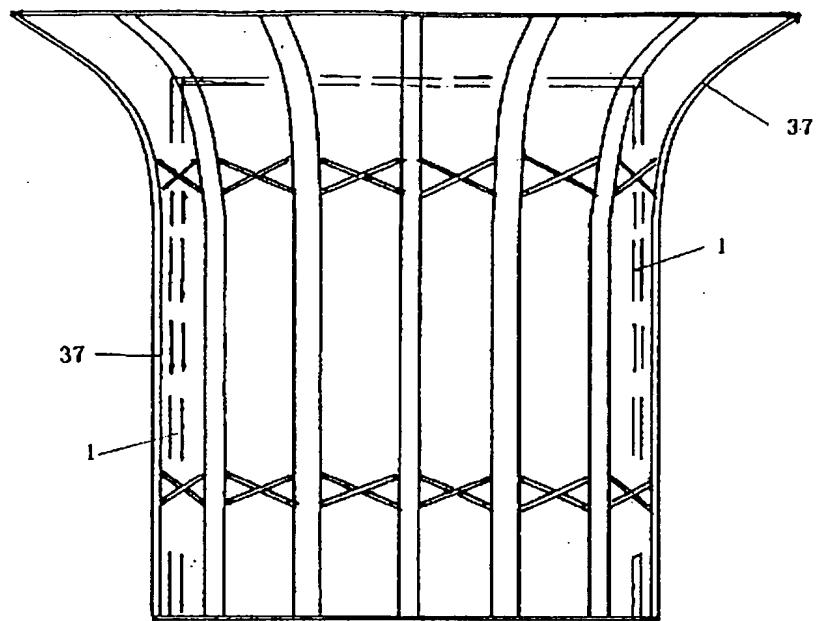


图5

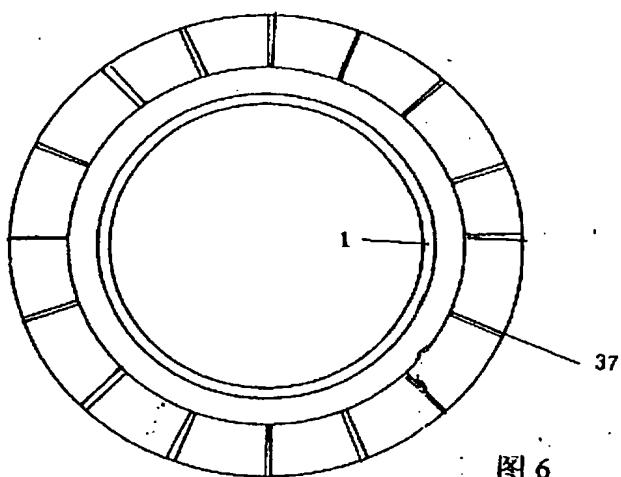


图6

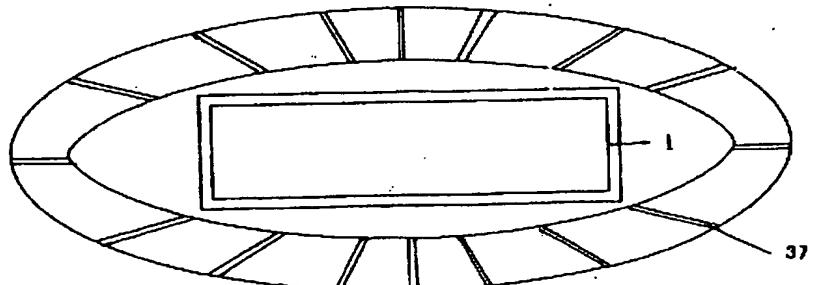


图7